## ABSTRACT OF THE DISCLOSURE

The invention includes a method of cleaning a processing chamber by introducing supercritical fluid into the processing chamber. A residue over an internal chamber surface is contacted with the supercritical fluid to remove the residue from the surface. The invention also includes a method of removing deposited material from internal surfaces of a processing system. A cleaning agent comprising at least one of C<sub>3</sub>H<sub>8</sub>, C<sub>2</sub>H<sub>6</sub> and CH<sub>4</sub> is provided in supercritical phase into at least a portion of the processing system. A material deposited on an internal surface of the processing system is contacted with the cleaning agent to remove at least a portion of the deposited material.